

1948

# The Bobbin and Beaker Vol. 7 No. 1

Clemson University

Follow this and additional works at: [https://tigerprints.clemson.edu/spec\\_bobbin](https://tigerprints.clemson.edu/spec_bobbin)

Materials in this collection may be protected by copyright law (Title 17, U.S. code). Use of these materials beyond the exceptions provided for in the Fair Use and Educational Use clauses of the U.S. Copyright Law may violate federal law.

For additional rights information, please contact Kirstin O'Keefe (kokeefe [at] clemson [dot] edu)

For additional information about the collections, please contact the Special Collections and Archives by phone at 864.656.3031 or via email at cuscl [at] clemson [dot] edu

---

## Recommended Citation

University, Clemson, "The Bobbin and Beaker Vol. 7 No. 1" (1948). *Bobbin and Beaker*. 153.  
[https://tigerprints.clemson.edu/spec\\_bobbin/153](https://tigerprints.clemson.edu/spec_bobbin/153)

This Book is brought to you for free and open access by the Engineering, Computing and Applied Sciences, College of at TigerPrints. It has been accepted for inclusion in Bobbin and Beaker by an authorized administrator of TigerPrints. For more information, please contact [kokeefe@clemson.edu](mailto:kokeefe@clemson.edu).

THE

# BOBBIN & BEAKER

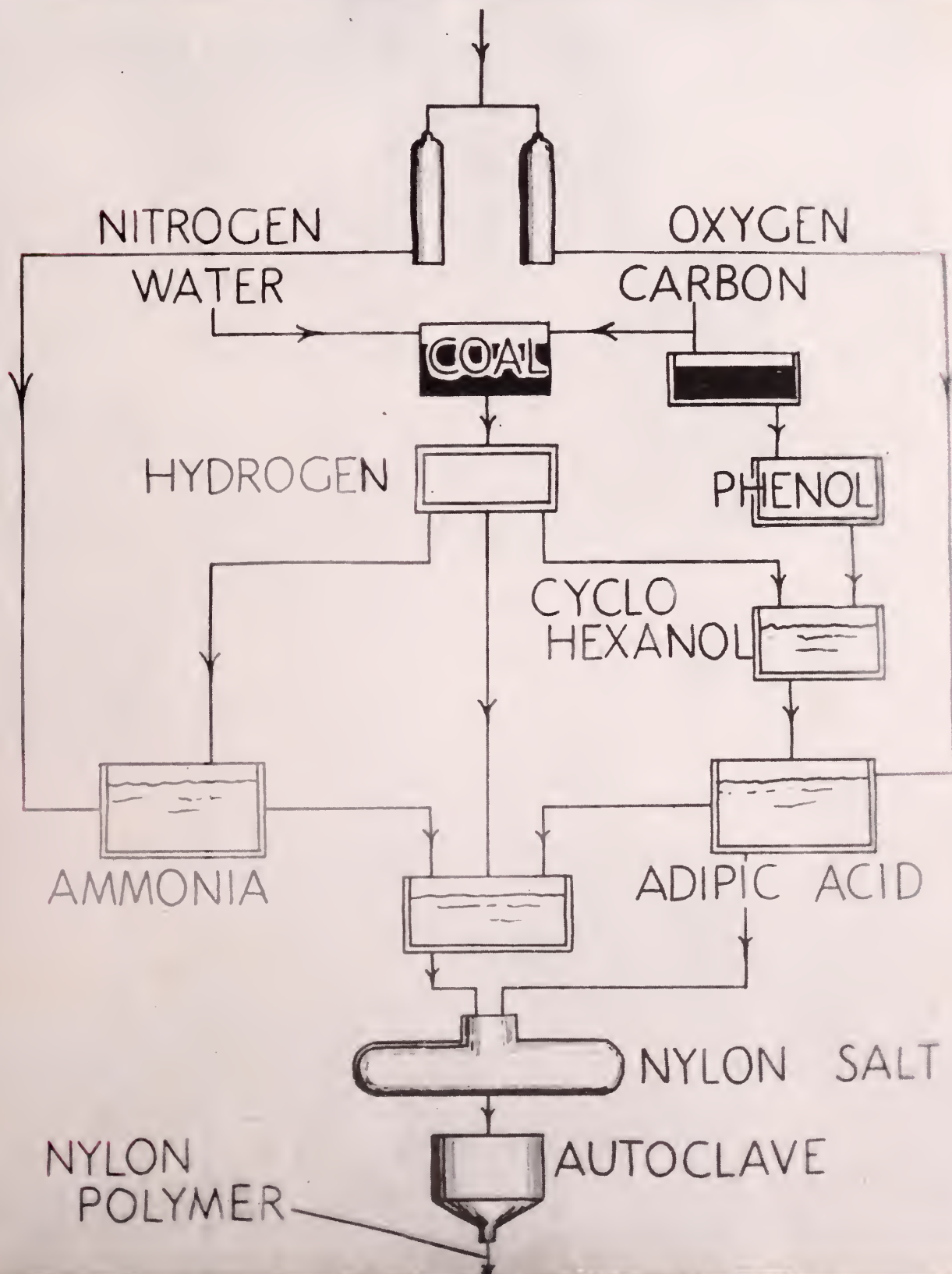
STUDENT PUBLICATION OF THE CLEMSON TEXTILE SCHOOL

VOL. 7

FALL ISSUE, 1948

NO. 1

## MANUFACTURE OF NYLON





*"Well, Professor, I want to be Governor or Secretary of State, maybe; but Bob, here, is the ambitious one. He wants to work for Burlington Mills."*

**Burlington Mills**  
*"Woven into the Life of America"*



EXECUTIVE OFFICES, Greensboro, N. C.

*Maker of - Women's Wear Fabrics - Men's Wear Fabrics - Decorative Fabrics - Cotton Piece Goods and Yarns - Hosiery Ribbons*

# THE BOBBIN and BEAKER

Official Student Publication  
Clemson Textile School

Vol 7

Fall Issue, 1948

No. 1

## In This Issue

|   |    |
|---|----|
| TEXTILES THROUGH THE MICROSCOPE, T. L. W. Bailey, Jr. | 3  |
| THE SOUTHERN TREND, G. M. Moisson, Jr.                | 4  |
| WHY NOT? J. P. Clancy                                 | 6  |
| DEAR SON  | 8  |
| NEW EQUIPMENT, R. J. Rice                             | 10 |
| TEXTILE SCHOOL NEWS                                   | 12 |
| PHI PSI NEWS  | 14 |
| NEW PROFESSORS  | 15 |

**THE BOBBIN AND BEAKER.** Organized in November 1939 by Iota Chapter of Phi Psi Fraternity, and published and distributed without charge twice during the school year by students of the Clemson College School of Textiles.

Address: The Bobbin and Beaker, P. O. Drawer 552, Clemson, S. C.

All Rights Reserved.

### POLICY—

The views and opinions expressed in all guest articles are those of the writers themselves, and must not be construed to necessarily represent the views and opinions of the Editors of this magazine or of the Faculty of the Clemson College School of Textiles.

**THE BOBBIN AND BEAKER** is a non-profit magazine organized to serve Clemson students and the textile industry. The publishing and circulation costs are financed entirely through proceeds received for advertisements. We ask our readers to favorably consider our advertising when buying.

**THE COVER.** "Diagrammatic Sketch of Nylon Manufacture" Part of Visual Aid Technique of teaching used in Clemson's Textile School.

### THE STAFF

**R. J. Cheatham, Jr.**  
Editor

**J. P. Clancy**  
Asso. Ed.

**G. M. Moisson**  
Editorial Ass't

**Nathaniel A. Howell**  
Managing Editor

**E. T. Broadwell, Jr.**  
Advertising Mgr.

**G. E. Uldrick**  
Circulation Mgr.

L. S. Smith ..... Asst. Managing Ed

G. Asnip ..... Asst. Business Mgr.

Floyde Griffin ..... Asst. Advertising Mgr.

B. K. Sutton ..... Asst. Advertising Mgr.

C. L. Pickens ..... Asst. Advertising Mgr.

M. N. Bridwell ..... Asst. Circulation Mgr.

V. I. Lubash ..... Asst. Circulation Mgr.

Prof. R. K. Eaton ..... Faculty Advisor



# **Chicopee Manufacturing Corporation**

**Walhalla**

**Oconee County, South Carolina**

•

**Cotton Textiles**

•

**Chix**

**Chux**

**Masslinn**

**Lumite**

**Chix Disposies**

# Textiles Through the Microscope

**T. L. W. BAILEY, JR.**—Mr. Bailey received his B. S. degree from Clemson Agricultural College in 1926, and remained three years to work on cotton investigations in the South Carolina Experiment Station. This program was concerned with influencing fiber development in the cotton plant in desired directions.

From 1929 to 1941 Mr. Bailey was Cotton Technologist with the U. S. Department of Agriculture. When the USDA set up its regional program he was assigned to the Southern Regional Research Laboratory in New Orleans as Fiber Microscopist. He served in this capacity from 1941 to 1946. Now employed as Research Microscopist at the Institute of Textile Technology, Charlottesville, Virginia. Mr. Bailey is a recognized authority on fiber structure and fiber microscopy in general, with cotton as his specialty. In this field his work has attracted international attention. His photomicrographs of cotton fibers and yarns as compared with rayon and synthetic fibers visualize the invisible in ways as striking as they are informative. His published technical bulletins and scientific papers relate to the properties of various fibers, including many different cottons, and to microscopy as a technique in fiber research. He is also the author of the chapter on fiber microscopy in the Fifth Edition of Mathew's "Textile Fibers", and several U. S. Department of Agriculture technical bulletins.

Mr. Bailey is a member of the Fiber Society, Sigma Xi, and AAAS.



In the study of textile materials—fibers, yarns, plies, cords, and fabrics—the microscope is a most valuable tool. With this instrument and accessory equipment it is possible to study dimensions, shape, color, structure and markings, other physical properties, and behavior toward chemical reagents, and to obtain a more exact understanding of the effects of any treatments applied. Control tests with the aid of the microscope, made during the development of a process, assist the investigator in modifying his method to attain a specific end.

At the Institute of Textile Technology, the microscope is being employed in the study of improvements in cotton products. Since individual fibers are often affected by treatments used to alter the characteristics of yarns or fabrics, it is necessary to consider the variability and the range of magnitude of the physical properties, including fineness, length, and shape, of the raw fibers. This information serves as a basis of comparison for the changes brought about by various treatments.

For certain investigations, fibers may be examined satisfactorily in longitudinal view to show effects of treatments—for instance, the lack of convolutions in mercerized fibers. However, examination in cross section will show in greater detail the effect of the treatment—the degree and uniformity of swelling, depth of penetration of additive materials, and the amount of fiber deformation.

A miniature microtome has been used for some years in the study of the cross-sectional features of wool, cotton, and

other fibers. In this laboratory it has been used also for the sectioning of fabrics to show warp and filling yarns in their natural positions, to show the effects of various special finishing treatments on fabrics, and to permit the identification of the kinds of fibers in a fabric.

Dyeing and staining techniques may be used to good advantage in studying the penetration of additive materials such as preservatives for rotproofing, water-repellent coatings, and special finishes. Usually, such materials are transparent and not easily observed in thin sections unless they are colored. Selective dyes or stains may thus be used to show the location of the coating material. In the case of certain chemical treatments, the dye or stain is absorbed by the treated fibers; the untreated fibers are easily distinguishable since they remain unstained. Sized yarns may be examined for uniformity of coating of starch by the use of iodine solution. When cotton yarn which has been subjected to any acetylation treatment and dyed with an acetate dye, the fibers which have been more highly acetylated take on a dark coloration, whereas the fibers that were not so greatly affected by the process remained white. The incompleteness of the acetylation in this particular instance is readily revealed by microscopical examination.

The properties of fabrics (Fig. 1) and cords (Fig. 2) can be considerably altered by impregnation with chemical compounds. Rotproofing, mildewproofing, fireproofing, and

(Continued on Page 18)

# The Southern Trend

## The Clemson Man's Duty to the South

By George M. Moisson, Jr.

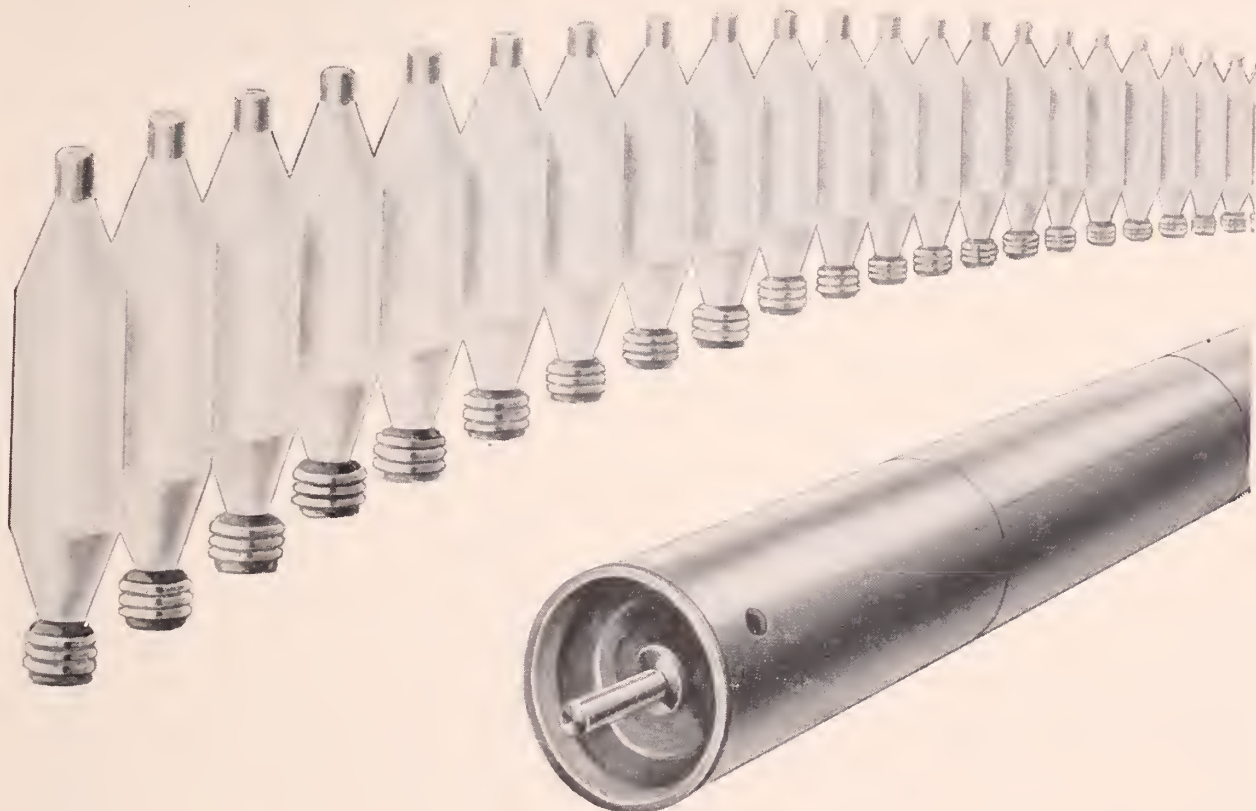
Hidebound, unchanging, and strife-torn New England has never found the solution to the old problem of excessive manufacturing costs. We, the new industrial South, have shown that new methods, new machines, and fair returns for our honest labors are welcome additions to our textile industry and that we are willing to learn, earn, and grow with our Yankee brothers who have turned to us for help.

We do not consider our expanding industry as wholly competitive with our Northern brothers, but look toward the shift as a beneficial spreading and decentralizing which would eventually occur in line with national security measures.

Farm to market transportation costs are lowered, high property taxes are avoided, labor problems are lessened, and population shifts are expected. Outside of the obvious economic advantages to be realized, the shift in population should do much to lessen the lingering animosities which have held over from the war of 1861. Having been born in the South and having heard tales of Carpetbaggers and Scalawags since early childhood, your author was prepared for the worst when duty called him North in 1936. After constant exposure to Yankees for ten years I have yet to be called a damn-rebel, or to be treated in other than a courteous way by any Yankee. I am convinced that any animosity which yet exists is entirely one-sided. It is our duty as Clemson men, and Americans, to work with, love, and respect the men who have nothing but respect for us.

The growth of the textile industry in South Carolina is reflected in the unprecedented enrollment in Clemson's textile school. New equipment is being installed every day, new faculty members with backgrounds of experience and knowledge are serving us well. We, as students of this great institution, have a fourfold responsibility to uphold when we emerge into the public view as "Clemson Men". The first is our duty as citizens to defend our country; many of us have done so, others are being trained well to serve as officers or technicians, if we are needed again. Our second responsibility is the privilege of the vote. We should analyze as best we can the situations facing our lawmakers, and support by means of the ballot the men of our choice. Our army and our democratic government provide us security and happiness. We face our third responsibility, that of securing and defending our families from the poverty and privations which they faced when we were children. Constant study and application, along with tact and sound business methods, should prevent the reoccurrence of "depressions" such as the last one. Fourth, but not the least of these, is our duty to ourselves, and to Clemson College, of upholding the principles instilled in us by our association with other Clemson men. Judicious display of knowledge and constant use of tact and diplomacy will assure success; arrogance and conceit will not command respect.





# Get Uniform Quality With JENKIN'S *Dynamically Balanced* SPINNING CYLINDERS

Take those vibrating cylinders off your "payroll"  
... replace them with Jenkins Dynamically Bal-  
anced cylinders, and watch operating costs go down  
and yarn quality go up.

## PROMPT SERVICE

Our expansion program is completed, our produc-  
tion more than doubled, and we are happy to an-  
nounce that we can give much better service on all  
orders for spinning cylinders . . . also picker and  
card screens.

Don't waste time wondering what Jenkins Dy-  
namically Balanced cylinders can do for you . . .  
place your order now—or write today for complete  
information.

**JENKINS** **METAL**  
**SHOPS**  
Incorporated  
GASTONIA, NORTH CAROLINA



# WHY NOT?

By JOSEPH P. CLANCY

For the last few years, newspapers and magazines have been filled with dissertations on the movement of the textile industry to the South. A cartoon illustrating this would have New England weeping and gnashing their teeth and the South smilingly welcoming the newcomer with open arms.

The first question that arises is whether or not this shift of industry is an entirely recent affair. To answer this question, let us go back before World War I. At that time in the South, there were a few small concerns, locally owned, producing grey goods. After 1918, the trend began. Not so much a national shift at first, but rather an expansion in the South itself. As time went on, finishing plants were set up and a few courageous individuals started converting the finished goods into consumer products. Through the '20's New England mills enjoyed fair prosperity while the southern companies grew quite slowly. During the depression of the '30's, many New England mills suffered severely. At the same time, the southern mills continued operation even though their output was slightly reduced. Prior to World War II, the shift to the South really began. This however was temporarily halted by our engagement in hostilities. The last shot of the war was also the signal for a continuation of the movement to the South by new textile industries. Today it is impossible to pick up a newspaper without noting the building of a new or the expansion of an old textile plant somewhere in the South.

Now we ask ourselves: what has caused this? The first answer that pops into some people's minds is that there is cheap labor in the South. This is a fallacy. True, wages per hank or per frame are lower in the South than in New England. Still, workers of equal capacity and ability receive approximately the same weekly wages. How can this be so? The answer is that manufacturers have found that the southern worker will give eight hours work for eight hours pay. This does not mean that any mill owner in the South expects his workers to sweat and slave from whistle to whistle. Fair rest allowances are granted. The worker has his job to do and if he performs it correctly, all concerned are satisfied. The worker has a good pay to take home and the manufacturer has quantitative return for his investment.

Then, if cheaper labor is not the true enticement for this remarkable growth, what is? Remarkable growth is really an understatement for since 1945 over one half billion dollars has been put into the textile industry in South Carolina alone. This amount of money would seem to indicate a permanent investment, thus demonstrating that the cotton manufacturers have finally obeyed the laws of economics. Have you ever heard of salmon being canned in Nevada or Oklahoma? Of course not! Canneries are set up in certain ports as close as possible to where the fish are caught. Economics demands this. Therefore, isn't it only natural that cotton should be processed where it is grown.

There is some question as to whether the center of manufacturing having moved from New England to the South might move on further south, say to South America. At the present time cotton is being successfully cultivated in Brazil. For all of that, it will be many years before a movement of this kind could be felt seriously. In 1794, Eli Whitney made New England the world's center of cotton processing by his invention of the cotton gin. It wasn't until the 1940's that the North's leadership was threatened. In other words, over 150 years passed before any section gave serious competition to New England in the cotton processing field. During this time, the technique and know-how of running a mill was learned by today's mill operators. At the same time, the worker's skill in handling new types of machines was increased. It stands to reason that a like period of time must elapse before a threat materializes to dislodge the South from its position of leadership.

Of course there are many other points which could be brought out concerning this movement, but let us consider just one more; that is housing. In the past, most mills had their own villages, many of which still exist today exactly as they were twenty years ago. However, some of the new leaders have looked into the future and are initiating a new method of housing. These men are now building their mills out in the country where surroundings are much more pleasant. These men are making it possible as far as they can to have the workers own their own homes. There is nothing crowded or industrial about their residences. Just a comfortable home that can be called their own and a small garden to bring in fresh produce. A man is happy in surroundings such as these, and what is more important to any executive than to have contented people at their daily toil.

# A TEXT for better TEXTILES

## NEOZYME \*

A concentrated, fast-working, powdered, desizing agent containing enzymes which will remove starches or proteins. For use in any conventional desizing machine.

## PAROLITE \*

A dust-free, white crystalline reducing agent. Soluble, colorless, excellent for stripping wool rogs, shoddy, acetate or Nylon fabric.

## VATROLITE \*

"For brighter vat dyed colors on cotton, linen and rayon. Use this powerful concentrated reducing agent for faster, cleaner results on wool, cotton and rayon."

## VELVORAY \*

"A blend of vegetable oils and specially selected fats for a superior, non-foaming, finishing oil. High in combined  $SO_3$  and stability. Excellent for sanforizing."

## DISCOLITE \*

A concentrated reducing agent, highly stable at high temperatures, outstanding for discharge printing. Employed successfully wherever the reducing agent must dry into the fabric and retain its reducing power.

## FABRITEX \*

An improved textile gum of laboratory-check viscosity for printing on all fabrics, especially silk, and synthetic fibres.

## GUMOLITE \*

A refined, no-stain gum, proved valuable in achieving purest possible white effects in discharge printing.

## CASTROLITE \*

A highly sulphonated castor oil used as a staple penetrant for dyeing or bleaching in leading textile mills.

In textile chemicals... for the effects you want, the buy-word is... "for the right choice, buy Royce". A Royce sales engineer will gladly give you full details on any Royce product on request.

## 2 NEW ROYCE CHEMICALS

## DRYTEX \*

"A high-test wax emulsion type water repellent finish having extreme stability both in the barrel and in diluted form as used. Non-foaming."

## ZIPOLITE \*

"A superior detergent and wetting agent, effective in acid and alkaline liquors at all temperatures from cold to boiling."



\* Reg. Trade Mark

# ROYCE CHEMICAL CO.

CARLTON HILL, NEW JERSEY



# Dear Son . . . .

First printed in the "Textile Bulletin" July 15, 1947

**One of the Southern textile industry's outstanding operating executives wrote the message which appears on this page. It is in the form of a letter to an imaginary son. Eds.**

A short time ago you completed your college course and very soon will be going out into industry. It gives me pleasure to see you choose the same field that I did 35 years ago. The fact that you have chosen to go into the field of textiles demonstrates to me that you have faith in this industry, and also at least in your eyes I must appear successful. For a son to regard his dad as successful gives the father a feeling of pride that nothing else does. In fact it takes me back to the day when I helped you make your first kite. You regarded me as quite a craftsman then. Also, it reminds me of the days when I was teaching you to kick a football, and helped you land your first bass. Then you regarded me fully "All-American," and as a fisherman of the first rank.

Now you are going out on your own. Decisions from here on are going to be yours. Of course, there will always be more experienced and wiser men to whom you may go for advice and counsel, but in the end you have to make your own decisions. Once the decision is made you must see it through with patience and unrelenting effort on your part. It will not always be easy to stand with your decisions. Often it will take courage and you may find yourself standing alone. At other times you will find that you have decided unwisely. In that case remember, the only disgrace is to hold stubbornly to a course that you know is wrong. It is not the prerogative of women alone to change their minds, but men of wisdom often do so. As you climb the ladder of success, you will be more and more dependent on the help of others. May I give you something that has long been a guide for me? A guide so firmly fixed in my mind that it has become almost a prayer—in fact I call it "The Executive's Prayer:" God make me aggressive enough to face any situation and at the same time humble enough to realize the value of advice and counsel from my associates.

Remember, son, you alone cannot accomplish much in the short span of a lifetime, but with the help and co-operation of others, you and they can be a powerful force that can accomplish much. As a member of the football team you learned the value of team play. The same is true in a textile plant. The president of the company, along with his board of directors, sets the policy and fixes the schedule. The manager, or perhaps the superintendent, calls the plays just as you did as a quarterback. From now on your opposition will not be just an 11-man squad, but will be a more tricky adversary made up of a line recruited from the State of Competition, with Cost and Efficiency at the ends; in the backfield are Waste, Safety, Quality and Maintenance; the referee is Public Opinion. It takes a smart strategy board, and quarterbacking of no mean ability, to compete with that kind of opposition. Yes, son, and an awful lot of downfield blocking—an awful lot. In this game there are no time out or rest periods. It is a game played for keeps.

It will be a good many years and there will be many

hard jolts before you are qualified to call the signals. As a matter of fact, for the first year or two you will be lucky to be much more than the water boy. Keep in mind that the company you have chosen to work with has an experienced team. It has been successful for many years. It is made up of men of ability and experience. Watch and learn from those men. You will find them helpful and considerate, and when the day finally comes for you to call the signals, be sure you have learned well from those more experienced men the plays and the trickiness of the opponents.

Son, if you feel that your education is complete when you are awarded your degree, you are greatly mistaken. You will then be prepared only to begin learning. From now on your textbooks will not be made up of printed pages, but of people, machines, customs, methods, and human emotions. Only the machines will be blue printed—the rest, only contact with them, from day to day, will give you insight and understanding. As you grow older your sense of values will change, block letters and honorary fraternity keys will no longer be important. From here on out your value is going to be judged by your knowledge of the problem at hand, and your ability to do something about it. As a child you used to like to play Follow-the-Leader. Now you are going to play that same game, except that it will be sometime before it comes your turn to be the leader! Be sure when your turn comes that you have learned well how to lead, and remember, to be a leader you must have followers. Remember this. No amount of title will give you the necessary experience that will win the confidence of the workers.

Your immediate problem is to gain the necessary knowledge and experience to become a foreman. Only Time and Doing will give you these. Today's industry is no place for mental softies. Neither is it a place for yesterday's loud, physical giants or domineering, self-assertive personalities. Instead, today's foremen must be men that can and will create good-will and inspire loyalty within the ranks of the workmen. To perform well the duties of a foreman, you will have to acquire the knowledge of the capacity of machines, and how to keep them running. You must have the ability and knowledge which will enable you to instruct men how to use these machines. You must know how to keep track and stay within the boundaries of your departmental cost, and you must understand the capacity and temperament of the men whom you lead.

Son, you are finishing school at a very inopportune time. Unfortunately you have not learned how to ask for a job. You and your fellow students have not had to ask; as it is you who have been asked for, almost begged for by industry. I am afraid this situation has given you and your fellow students a false sense of importance. The salary you are going to be paid is all out of proportion to your knowledge and ability. Take it from me, son, the industry is not holding its breath or simply marking time until June for you boys to solve their problems. I would much rather you were coming into the industry as it was in 1930 or 1939; then you would have known just what having a job meant. In those days you would have been pushed by others to show your ability, and unless you made an effort to get and hold a job, you would have been one of those that fell along the wayside. You were most too young to notice or remember then, and besides you have no



choice in the matter, but don't be misled or blinded by your own importance based on a temporary condition.

The industry that you have chosen to enter is an old one, in fact I claim it is the oldest. When Eve, in the Garden of Eden, hid her nakedness with an arrangement of fig leaves an industry was born. As long as we have extreme weather, and as long as society refuses to accept nudism we will continue to have a textile industry, whether the fibers used are natural or synthetic. In the year of 1857 in New York, a Mr. Demering paid this glowing tribute to cotton:

"Great and incalculable is the wondrous power of cotton! It earns the poor man's bread and fills the rich man's pocket. It covers a new-born infancy and forms our garments for the grave. We toil for it by day, and lay ourselves down by night, while it refreshes and warms our hearts to the opening prayer of morning. The hopes and fears of millions, born and unborn, cluster around those unsightly cotton bales. It permeates through every department of civilized, and it may be, uncivilized life. It invents cotton gins and spinning jennies, and lifts inventive genius to immortality. It quickens slow moving industry and sharpens hungry avarice. It enlarges the boundaries of science and adorns art. It fills the imagination of poets and divines, and constructs cunning platforms for statesmen and politicians. It institutes oligarchies and perpetuates them, while it binds up with its tough fiber the democratic heart, and shields it from destruction. It freights the ships of commerce, and sends a missionary to every clime, and in the hour of danger barricades our cities, and nobly protects us from pillage and booty.

Wonderful! most wonderful! is the power of cotton! the universe is but a cotton mill, elaborating the necessities of men."

In 1857 they did not have today's synthetics, but even more so today the textile industry is an industry that is making for "better living." Keep in mind this, that all useful work is directed toward the development of physical or cultural and spiritual welfare of mankind. In the final analysis this is the only reason for work and effort, and unless work and effort are so directed towards that end it is useless.

Finally, son, don't take yourself too seriously. Any individual is very small in comparison to this old world. When you begin to feel how important you are, and how mighty your decisions, you are headed for a cruel fall. Better drive to the mountains and feel their majestic silence and observe how little time or man has changed them, or go to the seashore and observe how inevitable is the tide in spite of all the efforts of man. You must develop a spirit of tolerance. Remember, "The responsibility of tolerance rests with the one with the greater power of knowledge and understanding." Also, son, remember "those that pass you on your way up are the same people you will meet on your way down."

In conclusion, I can give you no better code than these words taken from the Book of Micah, "He hath shewed thee, O man, what is good: and what the Lord doth require of thee, but to do justly, and to love mercy and to walk humbly with thy God."

Lovingly,  
Dad.

# Chiquola Manufacturing Company

HONEA PATH, S. C.

Manufacturers

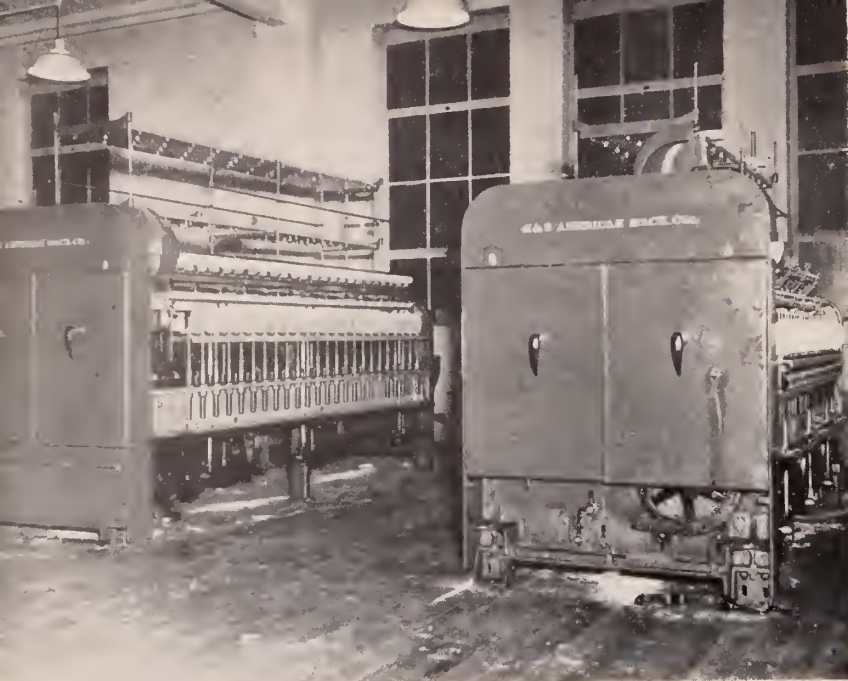
of

Print Cloths—Tobacco Cloths  
Carded Broadcloths

Selling Agents

Hesslein & Company

77 Worth Street



# New Equip

at Columbia.

When the machinery from the present Physics Building was moved into the newly completed Textile Building in 1938, a need for more and newer equipment was seen immediately and movements were started to provide this equipment. Various textile companies donated some machines, as they have continued to do all along and it is highly appreciated, but this was hardly a drop-in-the-bucket compared to what was needed.

The South Carolina Cotton Manufacturers Association put its shoulder to the wheel and voted to assess its members at a rate of 1 per cent for each spindle owned by that member and thereby build up a sizeable fund. But the war came along about this time and, as we all know, new machinery could not be bought for love or money until recently, when the machine companies have begun to catch-up on their back-log of orders.

Now, although some orders still require several months to be filled, the Textile School has been able to buy much of the equipment it needs, and the large, empty halls which greeted the returning veteran students and visitors for the past few years are fast being partitioned off into smaller, well-equipped laboratories.

The need for modernizing the Textile School has long been recognized by those intrusted with its operation, but, as has already been mentioned, there were many obstacles to overcome—the war lending to the major part. Such an improvement as we now can show is in itself valuable in many respects. The primary purpose for the school is, of course, training men for the operation of textile plants. With this new equipment, the textile student will be getting training on exactly the same type of work as he can expect to supervise after graduation. This accelerates his interest and willingness to learn, resulting in a better teaching job with much less effort from all concerned.

By having equipment equivalent to that of a modern textile plant, various and useful experiments can be carried on at the Clemson School of Textiles, and everyone, including the textile industries, will reap tremendous benefits from facts and figures taken from the results.

Also, there are notable morale effects to be gotten from having the knowledge that here at Clemson, in South Carolina, we have one of the largest and best equipped textile schools in the nation. Students, and others concerned with the School of Textiles, will take pride in being connected with the school and showing visitors around the building. Added to that is the old established feeling that success breeds on success. As the people who have the power and money, such as our Board of Trustees, the State Legislature and the Textile Industries notice what a splendid

Every year during "Homecoming" week-end at Clemson there are hundreds of people who visit the Textile School. Almost every one of these visitors has a slightly different reason for walking through the school and the interest of each varies accordingly. There are some who simply 'follow the crowd,' some who go along with friends and relatives who have interests in textiles; in quite a few cases we find those who have never seen any kind of textile machinery before, a large number are former graduates returning to the old stamping-ground and among these and added to these are the many textile executives and operating executives who have a first hand interest in the school equipment and activities. Whatever their reason for coming might be, these visitors are always welcome at the Clemson School of Textiles.

This year, the visitors found a great change in the equipment around the Textile School. The people who were visiting Clemson for the first time expected to find the Textile School as well or better equipped with modern machinery as the average textile plant, and this group was not disappointed. Those who entered the Textile Building expecting to be bored stiff by viewing the same old stuff that they have seen for the past several years were pleasantly surprised.

In fact and in theory the Clemson School of Textiles is now one of the most modern textile schools in the United States. Within the past few months, over \$125,000 worth of new machinery has been installed and is now in operation for teaching and experimental purposes. Adding to this the thousands of dollars worth of so called 'old' equipment, which is still as up-to-date as much of the machinery still in production in various textile plants and extremely useful for school purposes, your reporter can find no evidence to show that any other textile school in the South is so well equipped.

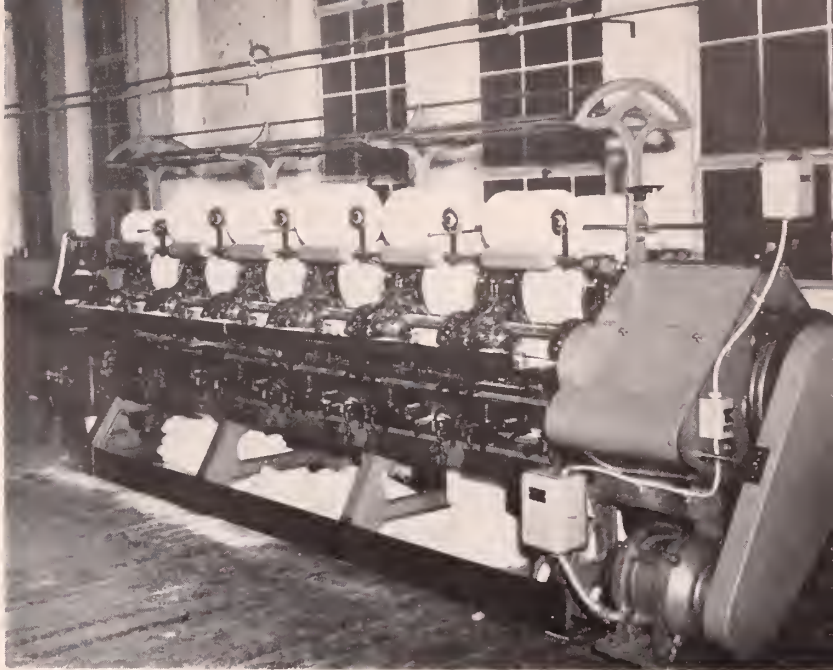
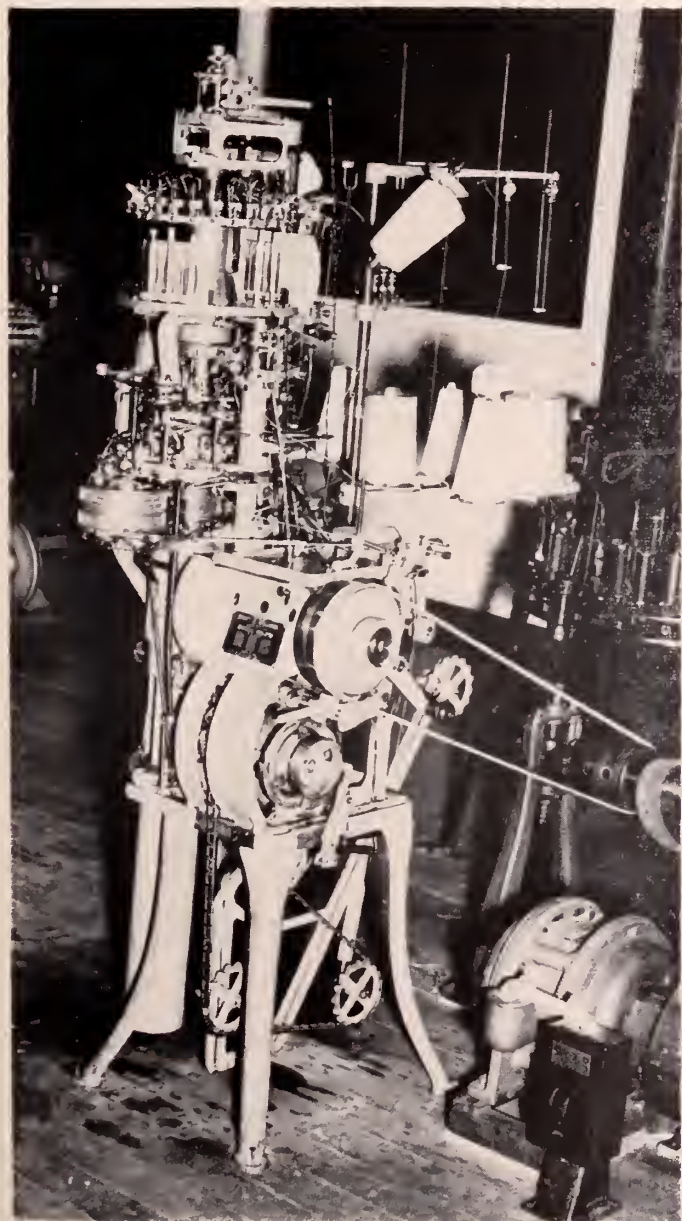
Such a concentration of modern and valuable equipment and machines did not 'mush-room' into existence over night, however. Its accumulation required work, effort, and money from so many different persons who are interested in Clemson's welfare that it would be impossible to give full credit to all to whom credit is due. To mention a few who are responsible, there would be the President of Clemson College, the Board of Trustees, the Dean and faculty of the School of Textiles, various textile concerns and associations and our representatives in the State Legislature



# Displayed

project the School of Textiles at Clemson College has turned out to be their interest and efforts are bound to accelerate and so will the progress of the Textile School.

As a method of discussing the new machinery in the School of Textiles, let's go back and take a trip with the



"Homecoming" visitors. Of course the older machines are still around and were inspected during the same tour of the Textile Building.

Beginning with the opening machinery and proceeding along the logical order in which the material passes while being converted from raw stock into cloth, we have a complete Saco-Lowell opening and picking process, consisting of blending feeders, vertical openers, a number 12 opener, all necessary condensers and filters and a one-process picker. The opening equipment is connected with the picker by a conveyer pipe equipped with sufficient wind gates to run stock through any combination of machines desired. The opening and picking has electro controls throughout.

From the picker we proceed to the card room where we find a new Saco-Lowell, roller-top card; a Saco-Lowell lap machine used in conjunction with a Saco-Lowell controlled draft drawing frame; a Saco-Lowell J-3, a Whiten Inter-Draft and an H & B Super-Draft fly frame.

Right next door is the new combing equipment consisting of a Saco-Lowell, 4 Delivery Drawing Frame feeding 8 ends and drafting 9-12. This drawing prepares the sliver for a Saco-Lowell Lap Winder which boasts all the latest safety devices and in turn furnishes laps for a Saco-Lowell double-sided long-piecing comber.

In the spinning department the newly installed machinery consists of a Saco-Lowell coarse yarn spinning frame with

(Continued on Page 16)

**J. E. SIRRINE & COMPANY**

Engineers

GREENVILLE, SOUTH CAROLINA



# *News Around the School of Textiles*

By R. J. RICE

## **LARGE ENROLLMENT IN TEXTILES**

According to reports from the Registrar's Office, 821 students registered for the School of Textiles this semester. This is an increase of 111 over last semester's enrollment and is the largest enrollment on record. Based on the total number who registered at Clemson this semester, 25 percent of all former students and 28 percent of all new students registered for one another of the courses of study offered by the School of Textiles.

## **FALL MEETING OF SOUTHERN TEXTILE ASSOCIATION GREAT SUCCESS**

After overcoming a late start because of the rain, the fall meeting of the South Carolina Division of the Southern Textile Association held in the Textile Building Saturday, November 6, developed into the most successful ever held. The rain seemed to have little, if any, effect on the attendance. Over 250 operating executives of textile mills of South Carolina showed up for the meeting, and the wet atmosphere outside only served as an opening topic of conversation as they arrived, and to give a more friendly, consolidated and attentive feeling among the members as the meeting got under way.

Helping to give the gathering an air of familiarity were the guides furnished by Phi Psi; the brightly decorated booth of Bobbin & Baker, where the attending members could register and buy football and luncheon tickets; the advertising companies who gave away souvenirs at the door and the flashing of light bulbs from the camera of Mr. Manuel J. Rogers, State Editor of the Greenville News, who came down to cover the convention.

Reverend E. W. Hardin, pastor of the Clemson Methodist Church, gave the invocation and the textile men were welcomed by Dr. R. F. Poole, president of Clemson, and Dr. Hugh M. Brown, dean of the School of Textiles.

Two talks, one dealing with personnel and the other with machinery, were given. Speakers were Mr. L. M. Howell of Howell-Wilson associates, of Greenville, who talked about "Causes and Cures of Bobbin Rejects at the Spooler," and Mr. W. M. Mussman, personnel manager of the Riegel Textile Corporation at Ware Shoals, who discussed "Supervisory Training."

About the waste caused by spooler rejects (tailings), Mr. Howell highlighted his talk by saying, "If any of us had all the money lost by cotton mills in South Carolina alone as a result of cutting salvageable yarn from bobbins for a six-month period, we could come pretty close to retiring. We admit that the salvage of yarn at the tailing machine is a tedious procedure, but at the present day price of cotton,

together with high manufacturing costs, everything possible should be done, first, to put the yarn on the bobbin in such a manner that it will spool off and, second, to try to salvage all yarn possible from bobbins that are tangled."

Mr. Mussman stressed the importance of organized training supervisory personnel of textile plants and recommended that "We give more attention to defining each supervisor's authority as much as we can."

He stated to the effect that "... with the demand of modern management and modern industry for greater efficiency, American industry is rapidly learning that it can better handle its personnel problems (and supervisory training is one of them) by the same careful study that it gives to production problems."

At a short session allotted to business, Mr. D. O. Freeman of Startex Mills at Tucapau was elected chairman of the weaving section and Mr. D. H. Roberts of Spartan Mills was re-elected secretary of the South Carolina Division.

Mr. J. B. Lybrand of Mills Mill in Greenville, Chairman, presided over the meeting.

Mr. John T. Wigington, Director of the Cotton Textile Institute at Clemson, was in charge of the program and had arranged for serving a dutch luncheon right in the Textile Building at 12:30.

During lunch, the much hoped for sun began to shine outside and the Textile men "adjourned" to Memorial Stadium for the Clemson-Furman football clash.

## **LARGE PERCENTAGE OF TEXTILE GRADUATES REMAIN IN STATE**

During the 15th Southern Textile Exposition held in Greenville last month a survey was made of the Clemson men attending, for the purpose of making new data cards on former graduates. From the information thus obtained, a sheet has been prepared showing the graduates' names, addresses, places of employment, and positions held, and dividing them into classes of graduation. This list makes interesting study for anyone who is connected with the Textile School.

The number who attended the show according to class were: 1903-1, 1906-1, 1909-1, 1913-2, 1914-1, 1915-2, 1916-2, 1919-1, 1922-2, 1923-5, 1924-3, 1925-3, 1926-2, 1927-3, 1928-6, 1929-3, 1930-1, 1931-4, 1932-4, 1933-2, 1934-1, 1935-2, 1936-5, 1937-7, 1938-9, 1939-10, 1940-10, 1941-9, 1942-15, 1943-13, 1944-9, 1945-2, 1946-3, 1947-22, and 1948-36.

Of the 205 Clemson graduates who attended the exposition, 140 are employed in South Carolina, 26 in Georgia, 23 in North Carolina, 4 in Virginia, 3 in Alabama, 3 in New York, 2 in Tennessee, 2 in Louisiana and 2 in Pennsylvania. The position of employment of these men

ranged from apprentices in training programs to president and treasurer.

### FIBER GROUP TO BE HERE AGAIN

In a recent decision to hold a meeting at Clemson for the second time, the members of the Fiber Society gave as their strongest reason the simple fact that they received such splendid treatment here in 1944 that they wanted to return for more. As most Southerners take great pride in being praised for their hospitality—the Fiber Society members spared no effort in expressing their praise—and due to the fact that the Fiber Society has never before returned to a place for a second time, it seems as if the people of Clemson should feel proud of this open honor and want to know more about the Society before it returns to Clemson for its second visit. People who appreciate us are the ones we like to see again.

In December of 1941 a small group of scientific men interested in the physical and chemical properties, the origin and technological applications of fibrous materials, met in Atlanta, Georgia, for the purpose of exchanging ideas and scientific information. From this meeting the present Fiber Society grew with the objective of the advancement of scientific knowledge pertaining to fibers, fiber products and fibrous materials.

Due to travel conditions the group did not meet in 1942 but held the second meeting in Charlotte, N. C., on September 17-18. Since the meeting in Charlotte the Society has held bi-annual meetings with Clemson College as host in 1944 and Callaway Institute as host in the fall of the same year. In 1945 the group met at North Carolina State College. Philadelphia Textile Institute was host in the spring of 1946 and the Institute of Textile Technology in the fall. In 1947 the Society met at the Southern Regional Research Laboratory in New Orleans, Louisiana, and the fall meeting was held at Princeton University. The University of Tennessee was host to the group at Fontana Village, North Carolina, in the spring of 1948 and the group met at Massachusetts Institute of Technology in the fall of this year.

The purpose of the Society is perhaps best illustrated by quoting directly from the Constitution, Article I, Section II, as follows:

"The Society is conceived on the hypothesis that the benefits of scientific knowledge gained through research on fibrous materials accrue to industry best, and this knowledge develops and matures most soundly only when there can be a meeting of minds, resulting in a free exchange of ideas and scientific facts. This Society is hereby established to provide the necessary means to this end, to encourage the informal presentation of papers on work both completed and in progress, and to stimulate helpful discussions on a high scientific level."

It is further required by the by-laws that no quotation or statement of opinion made during the discussions be permitted to go to press unless submitted by the speaker himself. The by-laws also provide that the membership shall be limited if such action is necessary.

Dr. K. L. Hertel of the University of Tennessee is president of the Society for the 1948-49 period. Mr. R. T. Kropf of Belding Heminway Cor-Ticelli is vice-president, Mr. John T. Wigington of the Cotton-Textile Institute is secretary, and Mr. S. Jack Davis of Callaway Mills Company is treasurer.

It is significant that Clemson has again been chosen as

the meeting place for the Society. All the gentlemen present at the meeting in 1944 enjoyed themselves so much and expressed such praise for the hospitality of the Clemson people until the Society decided to meet at Clemson again in 1949. Dr. Hugh M. Brown, Dean of the Clemson Textile School, is chairman of the Program Committee, and is working at present on a very interesting program for the spring meeting.

### CLEMSON MEN KEEP INFORMED

Those who are responsible for the standing of Clemson's School of Textiles are constantly alert and striving to acquaint themselves with the more modern methods and practices of the Textile Industry, plus new scientific information. The effort put forth for such objectives is evident by the following events which have taken place since the last issue of the Bobbin and Beaker was published.

Dr. Hugh Monroe Brown, Dean of the School of Textiles and Dr. Antonius Nicholas Johannes Heyn, Professor of Natural and Synthetic Fibers, attended the fall meeting of the Fiber Society at the Massachusetts Institute of Technology, Boston, Massachusetts. This meeting was attended by several other well-known Clemson men; among these was Mr. John T. Wigington of the Cotton-Textile Institute at Clemson. Mr. Wigington is Secretary of the Fiber Society.

The part played by Clemson was not all "take." Dr. Heyn made Clemson's contribution to the very educational program by preparing and presenting to the Technical Ses-

(Continued on Page 20)

## Southern Franklin Processing

Yarn, Dyes

Greenville, S. C.

## RALPH E. LOPER CO.

Specialists in

TEXTILE COST SERVICE  
INDUSTRIAL ENGINEERS

Woodside Bldg., Phone 2-3868, Greenville, S. C.

Bucington Bldg., Phone 6010, Fall River, Mass.



PHI



PSI

Because of increasing scholastic progress among textile students, Iota Chapter of Phi Psi has been forced to raise the requirements for eligibility. This step was necessary in order to comply with the national constitution of the fraternity which obligates each chapter to maintain the highest possible standards.

These new minimum grade point ratios have been set at 6.00 for first semester juniors, 5.50 for second semester juniors, and 4.75 for seniors of either semester.

Harry M. Miller, a member of Phi Psi has recently received the honor of being selected as a member of Who's Who Among Students in American Colleges and Universities.

On November 18, 1948, thirty-six students were initiated into Phi Psi. This was the largest number ever to enter Iota Chapter. The new members are A. E. Abrams, Ware Shoals, S. C.; J. R. Anderson, Elmhurst, Illinois; M. H. Anderson, Greenville; Ashley, W. E., Donalds; P. E. Baker,

Central; R. F. Barrett, Greenwood; E. Bates, Clemson; J. B. Black, Honea Path;; H. E. Bright, Greenville; J. G. Brock, Whitmire; H. E. Brockman, Charlotte, N. C.; J. A. Byrd, Greenville; F. B. Cameron, Greenville; E. J. Corley, Ninety Six; L. P. Corley, Clemson; D. E. Cowan, Abbeville; F. M. Cureton, Union; A. F. Garrison, Hartwell, Ga.; R. C. Hoffman, Clemson; T. L. Howle, Clemson; F. M. League, Easley; J. L. Lucas, Lancaster; D. C. McIntyre, Marion; P. C. Mickle, Easley; U. B. Moore, Clemson; V. C. Oxner, Kinards; C. L. Pickens, Anderson; R. J. Rice, Anderson; W. L. Rutledge, Greenville; D. K. Seaborn, Walhalla; E. W. Seigler, Greenwood; J. L. Strotman, Orangeburg; H. D. Stroud, Richmond; H. E. Thompson, Honea Path; J. L. Vinson, Union.

After the Clemson-Duquesne football game a drop-in was held by Iota Chapter in the Phi Psi Room for alumni, members, and their families and friends. Refreshments were served and close to one hundred people were present.

**12** years before the signing of the Declaration of Independence of the United States, of America, the Geigy organization came into existence.

Thus, 1949 finds the Geigy organization one hundred and eighty-five years old.

With that in mind and the fact the organization has shown a conservative and steady growth, it is only reasonable to deduct that Geigy occupies a distinct position in the field of dyestuffs and auxiliary products.

**GEIGY COMPANY, INC. - - New York**



*Dyestuff Makers Since 1859*

Boston

Portland, Ore.

Charlotte, N. C.

Providence

Chicago

Philadelphia

Toronto



## American Association of Textile

After a summer of inactivity, the Clemson chapter of the A. A. T. C. C. held its first formal meeting on September 28 and elected officers for the coming year. Doug Seaborn of Walhalla was elected chairman; Avery Garrison of Hartwell, Ga., vice-chairman; Joe Clancy of Lancaster and Lynn, Mass. secretary; and Jerome Wilson of Anderson, treasurer. Old members active at the start of the school year were: Armstrong, L. W., Barrett, C. M., Bloxham, A. W., Clancy, J. P., Dyer, C. A., Ellison, R. C., Fooshe, W. K., Garrison, A. F., Heaton, J. L., Kelsey, W. B., Moisson, G. M., Powers, B. L., Riser, C. W., Seaborn, D. K., Spearman, J. E., Westmoreland, R. N., Wilson, J., and Withington, J. M.

On October 14 a fish fry was held at the Y Cabin at which time new members were initiated into our local chapter. The food committee was composed of Messrs. Wilson, Riser, and Clancy with Mr. Seaborn as head chef and a fine time was had by all. The following are the new members: Boggs, R. H., Emerson, J. H., Hatfield, H. B., Keasler, B. M., Keasler, W. H., Mathias, W. L., McGuire, H. N., Neal, J. L., Reynolds, H. M., Rutledge, W. T., Taylor, W. F., Thompson, G. N., and Thornton, E. C.

During the coming year it is planned that movies pertaining to the textile chemistry industry will be procured for the benefit of the group. Also the chapter intends to have leaders in the field come to Clemson to talk to the group.

J. P. Clancy

—BOBBIN AND BEAKER—

E. Hays Reynolds, Class of 1947, is now employed as Sales-Service Representative with Keever Starch Company in Greenville, S. C.

—BOBBIN AND BEAKER—

A new teen-age fad now sweeping the country is a product of Riegel Textile Corporation. It is a knit cotton jersey glove in brilliant colors sold in mixed or matched pairs. Peggy Ann Garner, young motion picture actress, is the designer and has named the gloves, in typical teen-age fashion, HEP-MITS.

—BOBBIN AND BEAKER—

## Who's Who?

A train is operated by three men. Smith, Robinson, and Jones. They are fireman, engineer, and brakeman, but not respectively. On the train are three business men of the same names, Mr. Smith, Mr. Jones, and Mr. Robinson. Each of the following statements is important.

1. Mr. Robinson lives in Detroit.
2. The brakeman lives half way between Chicago and Detroit.
3. Mr. Jones earns exactly \$2,000 a year.
4. Smith beat the fireman at billiards.
5. The brakeman's nearest neighbor, one of the passengers, earns three times as much as the brakeman who earns \$1,000 a year.
6. The passenger, whose name is the same as the brakeman, lives in Chicago. Who is the engineer?

## New Profs



L. H. Jameson

Professor L. H. Jameson, Clemson graduate Class of 1942, has returned to Clemson to instruct in the Weaving and Designing Department of the Textile School. He received a B. S. degree in Weaving and Designing and did graduate work at Furman University and Clemson. Upon graduation Professor Jameson was called into the Army Air Force. He served as a pilot for three and a half years with eighteen months of overseas duty. After being discharged he worked in the Weaving Department and Laboratory of Dunean Mills. He later worked in the Standards Department of Abbeville Mills.

—BOBBIN AND BEAKER—

## John C. Edwards

Professor Edwards graduated from Clemson in 1942 in Textile Engineering. He was a technologist with the Q. M. Corps in the Engineering Depot at Jefferson from 1942 to 1945. Next he worked in the R & D Laboratories at the Philadelphia Q. M. Depot for three years. During this time he was working on the development of textile items used by the U. S. Army. Professor Edwards is now an Assistant Professor of Textiles at Clemson.

—BOBBIN AND BEAKER—



W. T. Rainey, Jr.

Professor Rainey received his B. S. in Chemistry from Davidson College in 1939 and the two years following did graduate work in Chemistry at the University of North Carolina. He then returned to Davidson for a year as Professor of Organic Chemistry. From Davidson he went to Washington, D. C., as a Research Chemist in the Chemi-

(Continued on Page 16)

## New Equipment Displayed

(Continued from Page 11)

Saco-Lowell Roth draft on one side and Saco-Lowell Z draft on the other; a medium yarn Saco-Lowell spinning frame with Saco-Lowell Shaw and Z drafting systems are especially designed for synthetic fibers ranging up to 3 inches in length. Each side of the two Saco-Lowell frames is geared for independent twist. This gives great flexibility and is especially useful for teaching purposes. Such a set-up provides for a maximum variety along with a minimum investment for machinery. These Saco-Lowell frames are equipped with New-Era ball bearing spindles and Vari-Pitch Wide range variable speed drives.

There are one course yarn and one fine yarn H & B spinning frames, both equipped with the Casa-Blanca

—BOBBIN AND BEAKER—

## New Profs

(Continued from Page 15)

cal Warfare Section of the U. S. Naval Research Laboratory. From 1944 to 1946 he served in the U. S. N. R. as an instructor in the Radio Technicians School on Treasure Island near San Francisco, California. After leaving the Navy he returned to the University of North Carolina where he received his Ph. D. in Chemistry.

—BOBBIN AND BEAKER—

### Humphrey K. Ezell, Jr.



Professor Ezell was born in New Orleans, Louisiana, but attended grade schools in South Carolina. He graduated from Pendleton High School and from there went to Furman University where he received his B. S. degree in 1948. While at Furman he was President of the Student Council and a charter member of Blue Key. He served as an instructor of Chemistry at Furman from January to June of 1948 and stayed on to work under John R. Sampey in the U. S. Naval Chemical Research Program during the summer, coming to Clemson in September.

—BOBBIN AND BEAKER—

### Richard Calvin Hendrix

Professor Hendrix finished in Textiles from Parker High School in Greenville in 1942. He came to Clemson for one year, leaving to serve in the Naval Air Force for 26 months. He returned to Clemson and graduated in Textile Engineering in August 1948. Professor Hendrix is now an Instructor of Carding and Spinning. While a student he was a member of Phi Psi and Phi Kappa Phi.

drafting system on one side and the H & B 4-roll system on the other. On the 4-roll system the middle roll can be run unweighted when running long-staple fibers. These H & B frames are also being equipped with variable speed drivers.

Leaving the spinning, we next go to the warp and filling preparation department. Here we find a new Cocker high speed warper. This warper is especially designed for continuous filament yarns, such as rayon, but can be used on cotton with excellent results. It was recently installed, along with a new Cocker rayon slasher, with the intention that the combination would not only give the students training on a modern warping and slashing system and be used to make all the warps needed by the school, but could also be used by textile companies for experimental purposes.

For winding filling, there is a new, 20 spindle, Universal No. 90 filling winder, suitable for both natural and synthetic fibers.

The weaving section is also well-equipped with modern machinery. There are 4 new X2-Draper looms for use on cotton and spun rayon; 1 XD-Draper loom for continuous filament fibers; 1 XP Draper loom for spun rayon weaving and 3 S6-Crompton-Knowles looms especially designed for continuous filament yarns, such as rayon or nylon.

In the Knitting Department we have a Cidego warp knitting machine, a Aveco Tricot flat knitting machine, a brand new Scott and Williams Half-Hose Pannel-Warp Circular Knitting machine equipped with a rubber lay-in attachment to make men's fancy hose and in addition to these we are expecting, in the near future, to install a machine for men's English-rib hose, one to make children's anklets and a machine to produce women's 51 gauge nylon hose.

In the air-conditioned laboratory used for textile testing purposes we have a Tubor Abrasor, a Suter-Webb Length Sorter, an Inclined Plane Tensile Tester, a Serigraph yarn evenness tester and several Scott, pendulum type testers.

(If a visitor is especially interested in textile testing machines, he can stop by the laboratories of the Cotton Textile Institute, located in the Textile Building, where they have such machines as the Micronaire, for determining the fineness of the cotton fiber, and the Fibrograph for determining the length, length distribution and uniformity of the cotton fiber.)

A walk through the Chemistry and Dyeing laboratories will show them to be very well equipped—even without any recently added equipment. And in the Cost and Time Study section, where the technical-knowledge accumulated by the textile student as he passes through the various classes or processes and machines already mentioned, is brought together as a single unit and summarized, you will find a good supply of such equipment as stop watches and calculating machines.

In addition to the new equipment in each individual department, the laboratories of the Textile Building have been equipped with the latest type humidifying system. This enables actual mill air conditions to be duplicated in any or all of the laboratories and thus to be able to obtain true and valuable results from projects and experiments carried on in the Clemson School of Textiles.

# *L. C. Martin Drug Company*

P. S. McCOLLUM, Owner

**The Official College Book and Supply Store**

**Books For All Mill Processes**

Serving Clemson Students Since 1908

CLEMSON, SOUTH CAROLINA



## Textiles Through the Microscope

(Continued from Page 3)

moistureproofing of fabrics have important connection with the usefulness of the fabric. They are essential for tents, sandbags, airplane covers, and canopies. Microscopic examination of sections of treated fabrics for degree of impregnation, and for comparison of various experimental impregnations in regard to depth and uniformity of penetration, is of value in the interpretation of specific chemical processes.

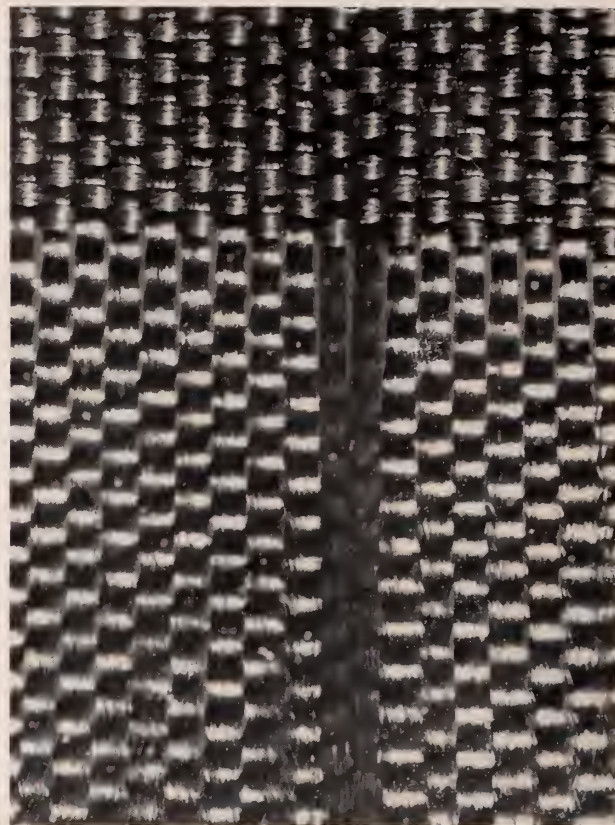
With the use of the microscope and special techniques, a detailed comparison of different types of cord can be made, and the effects brought about by different treatments can be accurately observed.

Cross sections reveal the changes resulting from physical and chemical treatments during the manufacturing processes, such as wet-stretching, emulsion coatings, twist combinations, and other treatments.

Cross-sections of two cotton tire cords, one unstretched and one "wet-stretched" show different arrangements of fibers. The wet stretching has brought about a more equal tension on the fibers and a compactness of plies. The unstretched shows looseness and fewer fibers parallel to the long axis of the cord.

A method of serial sectioning along the length of a cord (Fig. 3) has been successfully employed in the study of the intimate contact of fibers in yarns, plies, and cables. The relationship of these structural units one to another, as well as alterations due to mechanical treatments, have been studied by this method. Cords for such investigations are made of different colored plies; in this way, fiber alignment of individual singles and of plies may be easily followed. Somewhat in the same fashion, a method has been developed for serial sectioning or splitting of fabrics to study the contact, near the center of the cloth, of warp and filling yarns and to observe the manner of packing,

**Figure 2. Cross Section of 22nd Plane of Cotton Tire Cord. The black portion shows the degree of penetration of rubber into the cord.**



**Figure 1. Shiners in Rayon Fabric. (Note the lack of crimp in the two adjacent yarns, indicative of unequal tension.)**

the size and number of pore spaces in connection with water resistant fabrics.

The problems in textile microscopy vary from the examination of small samples of treated fibers to large specimens such as machine parts and spinning frame rolls. The utilization of the many instruments available, the electron microscope, the polarizing microscope, phase contrast accessories, bright and dark-field illumination, combined with the more conventional tests, provide ways and means for more clearly understanding and solving the problems of the textile industry.

T. L. W. Bailey, Jr.

**SULLIVAN HARDWARE CO.**  
**MILL SUPPLIES**

**Serving this section over 63 years**

Anderson, S. C.



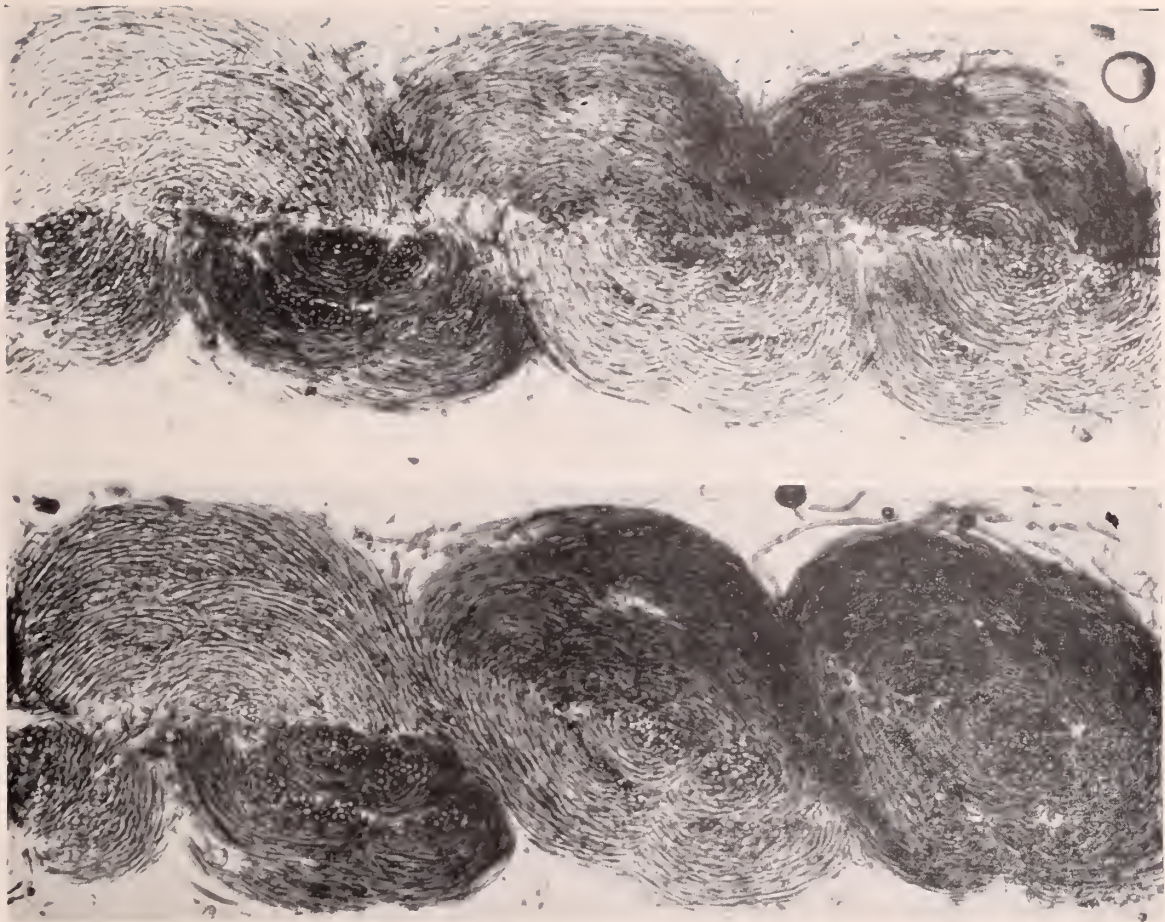


Figure 3. (top). Longitudinal section through the 22nd plane of 23 4/3 tire cord.  
Figure 4. (bottom.) Cross section through the 24th plane of 23 4/3 tire cord 56 x approx.)

## DUNEAN MILLS

Division of J. P. Stevens & Co., Inc.

Greenville, South Carolina

## PREVOST SUPPLY COMPANY

109 East River Street

ANDERSON, S. C.

MILL SUPPLIES

WELDING

Machine Shop Equipment

## GREENVILLE TEXTILE SUPPLY CO.

30 Years

of

QUALITY AND SERVICE

to

Those Demanding the Best

504-506 Rhett Street

GREENVILLE, S. C.

# Woodside Mills

Greenville, South Carolina

## 3 MUSTS FOR A PERFECT DESIZER

1. Must be safe for all fabrics . . . EXSIZE is a concentration of natural enzymes—cannot injure cloth.
2. Must work evenly and rapidly with uniform results . . . EXSIZE desizes quickly, leaving materials soft and absorbent—turns out the same clean fabrics every day.
3. Must be economical—simple to prepare and use . . . EXSIZE costs less than most desizing agents—no elaborate preparations needed.

Use our laboratories for your tests without obligation. Or, if you prefer, a trained Pabst field man will call on you at your own mill.

Write for our free booklet.



**PABST SALES COMPANY**

Chicago, Illinois

Warehouses at Jersey City, and Textile Warehouse Company, Greenville, S. C.

## News Around the School of Textiles

(Continued from Page 12)

sion a paper entitled "Small-Angled X-ray Scattering by Various Cellulose Fibers."

Another interesting and educational trip was made for the purpose of bringing up-to-date information to the Textile School by Professors Carson, Berry, Lathem, Hendricks and Hubbard. These energetic leaders in progress of the Textile School did not stop with a visit to one or two places for their educational information, they hopped all over the New England States.

### COMPANIES LIKE CLEMSON MEN

If there is any doubt in the mind of any of the textile students as to their chance of getting a job when they finish at Clemson it can easily be removed by noting the number of companies who send representatives here for the purpose of hiring graduates. Another method of reducing their anxiety is to take a look at the number of Clemson men already employed by some of the local textile plants.

As an arbitrary example, the employment sheet of Deering Milliken's plant at Abbeville shows the following names of Clemson graduates and the capacity in which they are employed: planning department, Ben Barnwell, P. W. Bethea, Billy Quarles and Bill Gilmore; industrial engineering department, Phillip Rosenberg, George Dusenburg, James Botts, John K. Cheatham, A. B. Carwile, Jr., R. L. Calvert, Carwile McWhite, R. A. King and M. P. Blanchet; cost department, Clyde Simmons; preparation department, Tom Peden and Charles J. Glen; card room, Dewitt Benson; superintendent, weave room, T. D. Ferguson; overseer, dye house, Wilson Webb; in charge of laboratory, R. A. Link; training director and assistant personnel manager, A. B. Carwile, Sr.; personnel manager, T. J. Reames; president, Bob Edwards.

### FILAMENT RAYON COMPLETELY PROCESSED

Professor Arthur E. McKenna, head of the weaving and designing department in the School of Textiles, is directing an experiment dealing with continuous filament rayon fabrics. The rayon will be processed from yarn to cloth, including warping, slashing, drawing-in, filling, winding and weaving. This is the first time continuous filament rayon has been completely processed at Clemson and everyone is hoping the experiment will be successful.

## Light Automatic Elevators

Exhaust Fans

**GOWER MFG. CO.**

Greenville, S. C.



# Challenge

## TO COLORISTS



**MEETING THE MANY PROBLEMS** in the selection and application of dyestuffs poses a series of challenges for colorists in the textile, leather, and paper fields. Ready to act as reliable "seconds" are Du Pont's Laboratories and Technical Staff with a wealth of experience and know-how. Their knowledge is at your disposal. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington 98, Delaware.

# Du Pont Dyestuffs

BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY





# PLAIDS

featured  
in our  
Spring  
Line



Riegel's spring line features many new plaids as well as "sure fire" action prints for sport shirtings . . . an important supplement to our established line of fine-carded, staple fabrics. You'll like the excellence of their styling and the eye-catching combinations of color. Every one is made from fibre to finished fabric in a single plant for the mark of quality . . . and value too.



**Riegel** TEXTILE CORP.,

RAYONS and COTTONS

Spinning • Weaving • Finishing

342 Madison Avenue, New York 17, N. Y.

Atlanta, Chicago, Dallas

Plants: Trion, Georgia and Ware Shoals, South Carolina